



A view upstream on the Sweetwater River as it winds its way through the refuge. The bottom lands are green after being recently inundated by the Pathfinder Reservoir. In the background is Eagle Mountain and, beyond, the Sentinel Rocks.

N A R R A T I V E R E P O R T

Pathfinder National Wildlife Refuge

January through December
1966

REFUGE PERSONNEL

Refuge Manager LeMoyne B. Marlatt
Refuge Clerk Vera M. Collins
Conservation Aide (6/1-9/2). Timothy L. Bone
Maintenance man (Temp. 5/10-6/18) . . . Lynn M. Miller
Maintenance man (Temp. 6/6-10/14) . . . Edward B. Lancaster
Maintenance man (Temp. 4/24-5/4). . . Marion R. Kinder

UNITED STATES DEPARTMENT OF THE INTERIOR
Fish and Wildlife Service
Bureau of Sport Fisheries and Wildlife
Laramie, Wyoming

NARRATIVE REPORT
1966

Pathfinder National Wildlife Refuge

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NARRATIVE REPORT
January through December
1966

Pathfinder National Wildlife Refuge

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I. GENERAL

A. Weather Conditions

Although an official weather station is located at the Pathfinder Dam and operated by the Bureau of Reclamation, we have been unable to get weather data directly from them. Instead, the data are sent to the Cheyenne Weather Bureau, and then to us. Instead of providing us with the maximum and minimum temperatures for each month, only the averages are given. Also, no snowfall records are available.

Month	Precipitation		Ave.	Ave.	Mean
	This Month	Normal	Max.	Min.	
January	0.24	0.29	31.0	11.7	21.4
February	0.48	0.38	30.4	10.9	30.7
March	0.25	0.63	45.0	23.5	34.3
April	0.86	1.11	51.8	26.1	39.0
May	0.60	1.59	69.6	39.5	54.6
June	1.47	1.19	75.5	46.5	61.0
July	0.62	1.03	89.2	58.4	73.8
August	0.92	0.88	81.8	50.9	66.4
Sept.	0.49	0.83	76.2	47.0	61.6
October	2.31	0.86	59.7	33.7	46.7
November	0.48	0.49	47.2	25.7	36.5
December	0.12	0.30	34.2	15.6	24.9
Totals	8.84	9.58			

Less snowfall was received this year, causing the year's precipitation total to drop off by nearly three-quarters of an inch. This can hurt the vegetation in a country which normally receives no more than 9.58 inches annually. With the shortages coming as they did in the summer and early fall months, poorer-than-average grass conditions resulted since early growth could not be maintained.

Temperatures averaged warmer throughout the year, except for the last three months. Some of the winter temperatures were low enough, however, to make it rough on wildlife. During the summer months, above 100 degrees temperatures were sometimes experienced and, together with the strong winds, caused high evaporation.

As the year came to an end, about 10 inches of snow covered the ground on protected areas, so the year is off to a good start.

B. Habitat Conditions

1. Water

The refuge benefitted from the good water year of 1965, because the Pathfinder Reservoir was raised in the early part of the year in anticipation of more runoff. The runoff did not occur but the reservoir was raised to the 5,819-foot level, anyway--only 31 feet below capacity. This is the highest level it has reached since 1934, and much higher than usual. The high-water table was beneficial to the surrounding vegetation during the early months of the summer but it was short-lived. Soon the downstream water users were calling for irrigation water and the reservoir was pulled down more than 50 feet during the summer.

The Pathfinder Reservoir serves primarily as a flood-storage reservoir. Therefore, it is not anticipated that the water level will reach 1966 proportions again until exceptionally wet years are experienced. The Bureau of Reclamation says that it will take three exceptionally wet years in succession to fill the reservoir.

The reservoir surface elevation on December 31, 1965 was 5,805.34. The following table is a record of the surface elevation at the end of each month throughout the year:

Pathfinder Reservoir Elevations 1966

January 31	5,812.26
February 28	5,817.60
March 31	5,818.98
April 30	5,817.28
May 31	5,810.04
June 30	5,801.94
July 31	5,787.60
August 31	5,767.36
September 30	5,778.80
October 31	5,779.24
November 30	5,771.87
December 31	5,767.24

With the light snowpack in the mountains this year, the streams ran quite low. Both Deweese Creek and Horse Creek dried up earlier than usual with a drastic effect upon the ponds built on them. The Soda Lakes, main waterfowl producing unit of the refuge, started the year very high but soon they, too, dropped to an alarmingly low level.

The Bureau of Reclamation appears to be going to stick to its guns in maintaining the minimum flow of 500 c.f.s. down the North

Platte River between Kortess Dam and the Pathfinder Reservoir. This flow, or more, was maintained all year providing an excellent fishery upstream from the reservoir, as well as some waterfowl habitat. The minimum flow of 500 c.f.s. was part of an agreement reached with the Bureau of Reclamation by the Wyoming Game and Fish Commission and the Division of River Basin Studies of this Bureau in 1964.

2. Food and Cover

Waterfowl food provided on the refuge is in the forms of aquatic vegetation and animal life and natural browse. The latter was plentiful most of the year as a result of the high water level earlier. Aquatic plant life did not fare so well. Most of this is provided by the streams and the ponds built upon them. Since these dried up early, this source of food was in rather short supply.

Excellent browse was provided the grazing species of wildlife along the receding water level of the reservoir. Close to the water's edge grew stands of Carex sp. and salt grass, Distichlis stricta. Good to excellent stands of roundstem and three-square bulrush developed in the flooded oxbows of the Sweetwater River as the reservoir receded, although many of them were too late to benefit nesting ducks. Further above the water line grew excellent stands of yellow and white sweetclover, some of which grew head-high. These stands received light use by nesting ducks but much use by antelope.

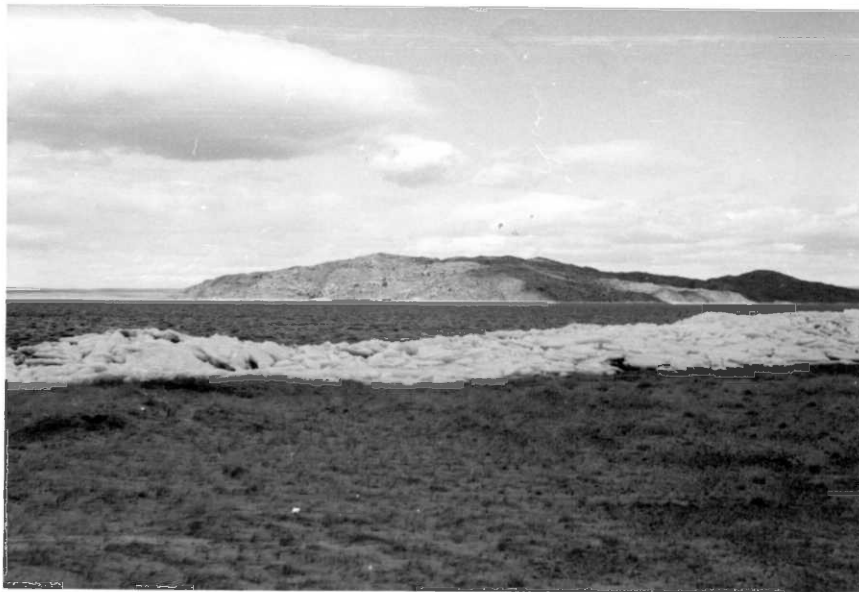
Nesting cover was good in the Deweese Creek Unit but pond levels were so low as to discourage much use by nesting waterfowl. Cover in the Goose Bay Unit was also good but the reservoir level dropped away before nesting got well underway. The usual poor nesting cover developed in the Soda Lakes Unit and the previous winter use by livestock did nothing to help it. This winter marks the beginning of the exclusion of all grazing from the newly fenced unit and it is hoped that some beneficial results will be forthcoming by next spring. This unit contains over 1,200 acres of low, alkali bottom land and has been the best waterfowl producer on the refuge.

Rangelands away from the reservoir were somewhat poorer than usual but, since they are only subjected to fall and winter grazing, sufficient grasses were present.

WATER



Pathfinder Reservoir began the year at a high elevation, as shown by this view of the Sweetwater Arm on which the major portion of the refuge is located. By mid-summer, however, the reservoir had receded from the Arm (front photo).



R-45, #2. Ice piled up on the shores of Goose Bay, signifying the coming of spring to the Pathfinder Refuge.



R-45, #18. The Soda Lakes, as seen from the highway, were high in April when this photo was taken, but only the larger lakes held water by the time nesting season arrived. This is a favored nesting area for waterfowl and shorebirds.



R-45, #27-28. Panoramic view of the junction of Sage Creek, left, and the North Platte River. As can be seen here, the creek often floods, leaving deep-cut banks. This stretch of river is highly favored by fishermen, as well as by ducks and geese.

FOOD and COVER



R-46, #14. New growth of bulrushes along the receding shoreline of the reservoir on the Sweetwater Arm. A few ducks found nesting cover to their liking here.



R-47, #5. Sweetclover grew rank further from the Sweetwater River. Not much nesting took place in this dense cover but it was popular food for the antelope.



Color does more justice to the two views of habitat on the preceding page. An abundance of cover, but little used by waterfowl.



II. WILDLIFE

A. Migratory Birds

1. Ducks

Due mainly to the abundant early year's water supply, a 33 per cent increase in duck use-days was recorded from 1965 use. The high reservoir attracted good numbers of diving ducks, mainly redheads, to the backwaters on both the North Platte and the Sweetwater Rivers. (See Table 1.) Better-than-normal spring-time use was also noted for pintails which congregated mainly on the backwaters of the Sweetwater tributary. This use by pintails more than counteracted the decline in gadwall use-days. This year saw pintails largely replacing gadwalls on the nesting grounds at Soda Lakes.

Fall use of the refuge was disappointing. A low reservoir and rivers did little to encourage the fall flights to visit the area. Although fall conditions were quite similar to those in 1965, use-days fell off by more than 10,000. This was quite discouraging, needless to say, to the duck hunters making use of the newly opened portions of the refuge.

Duck production improved over 1965. Mallards continue to be second in importance in production. The lead, however, changed hands with pintails taking over from gadwalls, for some unknown reason. Of the 476 total young produced on the refuge this year, 285 were pintails. Last year, gadwalls were in the lead with 120 young.

Although several spot checks were made from time to time, only one intensive brood count was made of the entire refuge. This count was conducted over a two-day period, July 27-28. Principal brood areas counted, in descending order of importance, were the Soda Lakes, Horse Creek, Sweetwater River, Deweese Creek, and Goose Bay. The Sweetwater River assumed importance as a nesting area this year as the receding reservoir left flooded pockets of bulrushes along the river.

2. Geese

Canada goose use varied from a low of 30 geese to a high of 160 geese for the year. Last year's peak was 250 Canadas but this year saw use-days increase by some 3,800 days as use was more evenly distributed throughout the year.

Five Canada goose broods were observed, totaling 30 young. This was an increase of three broods and 40 young over 1965. Two of

the five broods were observed at the junction of Deweese Creek and the Platte River. The others were found in the Soda Lakes-Sweetwater area.

One of the new artificial nesting structures, put out in 1965, was used at Soda Lakes. (See photo section.) Of the ten structures placed in the Soda Lakes-Sweetwater area, this was the only one used. Plans are being made to provide additional structures in the area, however, in hopes that use will pick up eventually. Arrangements have been made with the University Wildlife Society group to provide a work project along this line in 1967.

TABLE 1. COMPOSITION COMPARISON OF DUCK SPECIES

Pathfinder Refuge - 1965 and 1966

:Species	1965		1966	
	:Peak Number	: Use days	:Peak Number	: Use days
:Mallard	: 350	: 39,900	: 315	: 38,955
:Gadwall	: 150	: 17,010	: 50	: 7,000
:Am. Widgeon	: 50	: 5,194	: 40	: 4,956
:Pintail	: 275	: 44,100	: 790	: 72,625
:Gr-winged teal	: 100	: 17,535	: 150	: 20,650
:B-winged teal	: 60	: 4,340	: 30	: 2,212
:Cinnamon teal	:	:	: 15	: 749
:Shoveler	: 130	: 8,050	: 115	: 8,960
:Redhead	: 100	: 8,715	: 730	: 31,990
:Canvasback	:	:	: 6	: 385
:Lesser scaup	: 10	: 1,190	: 60	: 5,026
:C. goldeneye	: 150	: 10,920	: 160	: 16,730
:Ruddy duck	: 40	: 840	: 5	: 140
:C. merganser	: 40	: 5,894	: 40	: 7,651
: TOTALS	:	: 163,688	:	: 218,029

3. Swans

Five whistling swans, a female and four cygnets, were noted November 22 on the North Platte River in the Deweese Creek Unit of the refuge. Although rarely seen on the refuge, this was not a first. Both trumpeters and whistling swans have been seen in small numbers in the past.

4. Other Water Birds

The shallow alkaline waters and mud flats of the Soda Lakes remain popular with hundreds of American avocets and Wilson's phalaropes during the summer months. Some nesting takes place but the extent is not known. Very few nests are found. This would make an interesting study project.

The mud flats provided by the receding reservoir made a popular feeding area for many more shorebirds this year, as might be expected. Killdeer numbered 150 at times during the summer. Spotted sandpipers were a common sight along the rivers. A small flock of long-billed curlews took up residency along the Sweetwater River again this year. It is not known if they nested on the refuge since no young were seen.

5. Mourning Doves

Only a scattering of small flocks and singles were noted.

B. Upland Game Birds

The refuge population of sage grouse was 150 birds at year's end, off some 20 birds from last year's total. This has been a rather rough year on the grouse. First, Mother Nature hit them with a late-season snow storm which decimated the population of young. Then, the hunter harvest took its toll. For many years now, many grouse have received protection from hunting on public lands because the stockman felt he had the privilege of posting his leased lands as well as his own. This has been a point of much criticism from certain conservation groups and he is now being forced to keep his signs down. This means that new lands are coming under the hunter's gun and, consequently, more of the off-and-on refuge population of grouse is being harvested when they leave the refuge.



Waterfowl and shorebirds enjoyed the browse and loafing spots provided by the receding waters of the reservoir. Goose Bay shoreline is shown in the upper photo, and the banks of the Sweetwater River, in the lower.





Mama Goose lies low on artificial nest made from 55-gallon oil drum cut in half. This is one of the predator-proof designs being experimented with on the refuge.





R-47, #3. Long-billed curlew in flight near the Sweetwater River.



R-47, #2. Sage grouse near its nest along Horse Creek.

C. Big Game Animals

The refuge provided excellent forage for antelope this year, especially along the Sweetwater River where sweet clover grew tall and rank. (See photo section.) Despite bountiful food conditions, however, the overall refuge antelope population appeared to decline, probably because of more off-refuge use and a somewhat poorer kidding season. A late season snowstorm may have killed some of the young. At any rate, the year and refuge total appeared to be down to 1,000 animals as compared with 1,200 a year ago. The refuge lies in prime country for the State's symbolic animal but it seems that hunting pressures in recent years, coupled with poor spring weather, have decimated the herds.

The usual numbers of mule deer put in their appearance again this year, indicating that the opening of the refuge last year to hunting of this species did not seriously affect them. The refuge population is estimated to be 70 animals. Most of the deer are seen in the rugged mountainous terrain along the Sweetwater Arm of the reservoir.

D. Fur Animals, Predators, Rodents, and Other Mammals

No important changes in the species listed on NR-4 were noted.

E. Hawks, Eagles, Owls, Crows, and Magpies

A buildup of bald eagles occurred in mid-March when nine were seen in the vicinity of a large group of ducks on the Sweetwater Arm. One golden eagle was with them. Another buildup of eagles was noted in mid-December when four goldens and five bald eagles were counted. Both species are present off and on throughout the year. No nesting is known to occur here.

F. Other Birds

Horned larks and lark buntings are the two most commonly seen other bird species on the refuge.

G. Fish

Interest in trout fishing on that section of the North Platte River between Kortess Dam and the Pathfinder Reservoir continues to pick up. This is listed as one of the "blue ribbon" trout streams in the State by the Game and Fish Commission since the minimum release agreement

for the river was made with the Bureau of Reclamation in 1964. Both rainbow and brown trout are found in this stream. About two and one-half miles of this river is on the refuge.

Reservoir fishing was considered to be fair to good during the spring and fall months. Occasional trout in the "lunker" class are taken here. Carp and suckers again threaten the reservoir fishery, however. The refuge portion of the Sweetwater River is apparently too silty for trout and the only portion that receives attention from the fisherman is just at its entrance into the reservoir. The stretch of river is presently being studied for ways of improvement by the Game and Fish Commission.

H. Reptiles

An occasional prairie rattlesnake was seen (and looked out for!) in the vicinities of Soda Lakes and Sage Creek.

I. Disease

None noted.

III. REFUGE DEVELOPMENT AND MAINTENANCE

A. Water Rights

After several years of hesitant water development, all with the permission of the Bureau of Reclamation, which has primary use of the Pathfinder waters, an effort was made this year to determine if any water was legally available to our Bureau. On July 13, Messrs. Godby and Nitzschke of the Regional Office and the refuge manager met in a special session with officials of the Bureau of Reclamation in their Denver office to discuss our possible filing on apparently unclaimed waters. It had appeared that there were some old water rights which had fallen to disuse on the Sweetwater River and its tributary, Horse Creek. The refuge hopes lay in claiming these rights so that ponds and crops could be developed for waterfowl.

It was finally brought to light at this meeting that there were no unclaimed waters, that the Bureau of Reclamation had purchased said waters and transferred them to the reservoir pool as project water for the users downstream, and that the Bureau of Reclamation never has any water rights, anyway, since they are purchased solely for the water districts. They did not object to our proposed uses of

the water. It was just that they do not have a legal right to give us permission to use it.

It now appears that, unless an outside chance of drilling a legal deep well avails itself, we are left without hope of additional water development on the refuge. This about pulls the props out from under any extensive program plans we may have treasured in our minds. If some old territorial water rights became available for purchase, they could be transferred anywhere on the watershed--if they could be purchased. At this time we don't even have that chance since Wyoming has not, as yet, passed any form of enabling legislation which would permit the purchase! We can but continue with less fruitful efforts at this time, and hope for the best.

B. Physical Development

The following work was contracted at Pathfinder: (1) installation of four new cattleguards in fences on the refuge--one of these is on a fisherman access road into the Platte River; (2) installation of a culvert under fisherman access road to prevent washout; and (3) excavation of a trash pit on the refuge near Sage Creek.

Twelve new trash barrels were fabricated and set out along a heavily used stretch of the Platte River for use by fishermen and hunters. There are now 20 barrels in use which require dumping about once a month during the summer.

The new trash pit was fenced out of the pasture and a locked gate installed on it. Fence stays were placed on the new fence forming the Horse Creek enclosure.

Work was begun on reposting the refuge boundary with most of the Soda Lakes boundary receiving new signs and white-painted sign posts.

Two buoy lines were put out with accompanying signs at each end to designate closed areas on Goose Bay and the Sweetwater River during the waterfowl production season. The buoys were set out on July 19-20 and taken in August 30.

C. Other Work

The Water Management Plan for Pathfinder was revised. An inter-agency meeting was attended in Casper, with the Bureau of Reclamation as hosts, to discuss proposed water management of the North Platte River reservoirs.



R-45, #10. One of the two refuge entrance signs on the Buz-zard Road which were rejuvenated this year.



R-45, #17. Re-posting the refuge boundary was begun this year on the Soda Lakes Unit. The posts are preserved with "Wolman" salts which permits painting over with white paint. The posts are available from Koppers Company, Denver, Colo-rado, and are guaranteed for 20 years in the ground.



R-46, #8. A contractor was hired to dig a trash pit on the Sage Creek-Platte Unit where visitor use has increased with the opening of the unit to waterfowl hunting and with improved fishing.

IV. RESOURCE MANAGEMENT

A. Grazing

According to a memorandum agreement signed in 1965, grazing recommendations are now prepared by this office for refuge lands and then submitted to the Bureau of Land Management which acts as grasslands administering agency for the three Bureaus involved with the administration of Pathfinder lands. Fees from nearly 2,300 acres of public lands over which this Bureau has primary jurisdiction are now being collected and 25 per cent turned in to the two counties in which the land lies.

Complaints have been received from two permittees over two recently constructed refuge fences. These fences permit better management of refuge marsh areas but the ranchers cannot understand why ducks should take precedence over cattle. ("What would you rather eat, a nice beefsteak or an old coot?")



R-45, #20. Cattle grazing along the Sweetwater Arm of the Pathfinder Reservoir. Reservoir elevation was at 5,819 feet above sea level, a long-time high since 1934.

V. FIELD INVESTIGATIONS AND APPLIED RESEARCH

Nothing to report.

VI. PUBLIC RELATIONS

A. Recreational Use

Most of the public relations work at Pathfinder was centered around providing the public with information about the refuge hunting areas and talking with fishermen and hunters while making the rounds. An increase in waterfowl hunting activity was noted this year on the newly opened Platte River portion of the refuge. It takes a lot of effort now to persuade the public that they are permitted to hunt waterfowl on part of an area long closed to this type of hunting.

B. Refuge visitors

Please refer to the Hutton Lake Refuge report.

C. Hunting

1. Antelope

Since the refuge lies in two State antelope hunting areas, the open seasons on the refuge corresponded with those of the State areas. The entire refuge is opened to antelope hunting. The refuge manager was away on sick leave during much of the seasons but reports indicate the usual good success on the two areas. By a cooperative agreement, hunters are checked by the State Game and Fish Commission wardens during the seasons.

2. Deer

The entire refuge was opened to the hunting of mule deer, beginning in 1965. As with antelope, the refuge lies in two State areas. Deer hunting on the refuge does not receive much attention from hunters since deer are not plentiful and they hang out in very rough terrain. An occasional deer is taken by the antelope hunter where the seasons overlap.

3. Waterfowl

As was mentioned earlier, waterfowl use dropped off during the fall period and so hunter success suffered accordingly. The three outlying refuge units were again opened to public hunting of waterfowl after being initially opened in 1965. This provides a total of 3,840 acres, or almost 23 per cent of the refuge, open to the waterfowl hunter. Most of this, however, is upland, and offers little to the hunter.

Most of the hunting took place on the Platte River portions of the Sage Creek and Deweese Creek units. The ponds on Deweese Creek and the Goose Bay portion of the reservoir offer fair to good hunting prospects but they are not readily accessible and are presently being overlooked by the hunter. Approximately 100 hunters spent nearly 600 hours in bagging 75 ducks and 20 geese on the Sage Creek-Platte Unit. Most of the ducks were mallards, followed by common goldeneyes and mergansers, and the geese were all Canadas. One of the more successful hunts was made by a group of five Casper hunters who managed a sneak hunt on a flock of Canada geese and bagged eight of the big birds.

D. Violations

No game law violations were noted this year. The normal sign shooting and littering took place but no violators were apprehended. Several fishermen were warned about having uncased firearms in their cars.

E. Safety

Please refer to the Hutton Lake Refuge report.

VII. OTHER ITEMS

A. Photos

The refuge manager took the photos which are included in this report.

Submitted by:

January 31, 1967

LeMoyné B. Marlatt
LeMoyné B. Marlatt
Refuge Manager

JD

Reviewed by:

W.D. Nelson
Associate Regional Director

4/7/67

Jan.-April

3-1750
Form N 1
(Rev. March 1953)

W A T E R F O W L

REFUGE Pathfinder

MONTHS OF January TO April, 19 66

(1) Species	(2) Weeks of reporting period									
	1/2-8	1/9-15	1/16-22	1/23-29	1/30-2/5	2/6-12	2/13-19	2/20-26	2/27-3/5	3/6-12
	1	2	3	4	5	6	7	8	9	10
Swans:										
Whistling										
Trumpeter										
Geese:										
Canada	150	75	75	75	75	75	75	75	75	75
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other										
Ducks:										
Mallard	50	30	30	30	30	30	50	50	100	200
Black										
Gadwall										
Baldpate										
Pintail										
Green-winged teal									100	130
Blue-winged teal										
Cinnamon teal										
Shoveler										
Wood										
Redhead								50	75	75
Ring-necked										
Canvasback										
Scaup										
Goldeneye	150	130	100	70	70	70	70	100	120	120
Bufflehead										
Ruddy										
Other C.Merganser	4	4	4	4	4	4	4	4	4	4
Total ducks	204	164	134	104	104	104	124	204	399	529

3-1750

Cont. NR-1

(Rev. March 1953)

W A T E R F O W L
(Continuation Sheet)

REFUGE PathfinderMONTHS OF January TO April, 1966

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production Broods:Estimate seen : total
	3/13-19 11	3/20-26 12	3/27-4/2 13	4/3-9 14	4/10-16 15	4/17-23 16	4/24-30 17	18		
Swans:										
Whistling										
Trumpeter										
Geese:										
Canada	64	64	50	30	30	30	30		7,861	
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other										
Ducks:										
Mallard	315	300	300	280	280	250	220		17,815	
Black										
Gadwall				10	10	30	40		630	
Baldpate				20	20	20	30		630	
Pintail	790	790	700	600	600	400	285		29,155	
Green-winged teal	150	150	70	50	60	90	90		6,020	
Blue-winged teal										
Cinnamon teal										
Shoveler				15	50	75	115		1,785	
Wood										
Redhead	115	200	600	730	730	650	215		24,080	
Ring-necked										
Canvasback										
Scaup	2	30	30	60	60	60	60		2,114	
Goldeneye	160	160	80	25	25	20	20		10,430	
Bufflehead										
Ruddy										
Other C. Merganser	1	2	10	10	20	40	40		1,141	
Total ducks	1,533	1,632	1,790	1,800	1,825	1,635	1,115		93,800	
Coot:				(over)						

	(5)	(6)	(7)	SUMMARY
	Total Days Use	Peak Number	Total Production	
Swans	0	0		Principal feeding areas Upper limits of reservoir on
Geese	7,861	150		the North Platte & Sweetwater Rivers and on shallow ponds.
Ducks	93,800	1,825		Principal nesting areas Geese at Soda Lakes
Coots	0			

Reported by Lee Marlatt, Refuge Manager

INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

- (1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.
- (2) Weeks of Reporting period: Estimated average refuge populations.
- (3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.
- (4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.
- (5) Total Days Use: A summary of data recorded under (3).
- (6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.
- (7) Total Production: A summary of data recorded under (4).

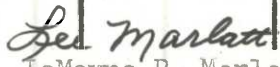
Form N 1A
(Aug. 1952)

MIGRATORY BIRD.
(Other than Waterfowl)

Refuge Pathfinder

Months of January to April, 19 66

(1) Species	(2) First Seen		(3) Peak Concentration		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Inclusive Dates	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Use
I. <u>Water and Marsh Birds:</u>										
- Western grebe	20	4/27	20	4/20-30	Still present					200
II. <u>Shorebirds, Gulls and Terns:</u>										
Mountain plover	1	4/27	1	4/20-30	"	"				10
Killdeer	5	4/6	50	4/28-30	"	"				600
Wilson's snipe	14	4/27	14	4/20-30	"	"				140
Long-billed curlew	2	4/27	2	4/20-30	"	"				20
Willet	5	4/27	5	4/20-30	"	"				50
American avocet	140	4/27	140	4/20-30	"	"				1,140
Wilson's phalarope	32	4/27	32	4/20-30	"	"				320
California gull	10	4/6	30	4/27-30	"	"				600
(over)										

(1)	(2)	(3)	(4)	(5)	(6)
III. <u>Doves and Pigeons:</u>					
Mourning dove		Occasional	Still present		30
White-winged dove					
IV. <u>Predaceous Birds:</u>					
Golden eagle	Present	6	Still present		480
Duck hawk	"	4	" "		480
Horned owl	"	100	" "		3,000
Magpie	"		" "		
Raven	"	10	" "		300
Crow	"	9	" "		300
Bald eagle		3/16-4/16	" "		
Turkey vulture	2 4/6	10	" "		450
Rough-legged hawk	1 1/25	2	" "		120
Marsh hawk	1 4/5	8	" "		300
			Reported by	 LeMoyne B. Marlatt	

INSTRUCTIONS (See Sec. 7532, Wildlife Refuges Field Manual)

- (1) **Species:** Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiformes)
II. Shorebirds, Gulls and Terns (Charadriiformes)
III. Doves and Pigeons (Columbiformes)
IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)
- (2) **First Seen:** The first migration record for the species for the reporting period.
- (3) **Peak Numbers:** Estimated number and inclusive dates when peak population of the species occurred.
- (4) **Last Seen:** The last refuge record for the species during the season concerned.
- (5) **Production:** Estimated number of young produced based on observations and actual counts.
- (6) **Total:** Estimated species days use (average population X no. days present) of refuge during the reporting period.

3-1752

Form N.

(April 1946)

UPLAND GAME RDS

Refuge PathfinderMonths of January to April, 19 66

(1) Species	(2) Density		(3) Young Produced	(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs 'v' d. Estimated Total	Percentage	Hunting	For Re- stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Sage grouse	Sagebrush flats and draws, and meadows-- 14,500 A.	145		100:100				100	1. Based on infrequent observations and reports of State G&F personnel. 2. Number seems to be down about 1/3 from last year's population--heavy hunting pressure near refuge.

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

- | | |
|---------------------|--|
| (1) SPECIES: | Use correct common name. |
| (2) DENSITY: | Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks. |
| (3) YOUNG PRODUCED: | Estimated number of young produced, based upon observations and actual counts in representative breeding habitat. |
| (4) SEX RATIO: | This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available. |
| (5) REMOVALS: | Indicate total number in each category removed during the report period. |
| (6) TOTAL: | Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons. |
| (7) REMARKS: | Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested. |

* Only columns applicable to the period covered should be used.

3-17-4

For. NR-4

(June 1945)

SMALL MALS

Refuge PathfinderYear ending April 30, 1966

(1) Species	(2) Density		(3) Removals					(4) Disposition of Furs					(5) Total	
Common Name	Cover Types & Total Acreage of Habitat	Acres Per Animal	Hunting	Fur Harvest	Predator Control *	For Re- stocking	For Re- search	Share Trapping			Total Refuge Furs Shipped	Furs Donated	Furs Destroyed	Popula- tion
								Permit Number	Trappers Share	Refuge share				
Coyote	All refuge uplands-- approx. 14,500 A.	725.0												20
Bobcat	Rocky foothills, sage- brush hills & draws-- 2,000 A.	133.3												15
Badger	Meadows, draws, dry grasslands - 6,000 A.	300.0												20
Striped skunk	Sagebrush flats & draws, marshy areas-- 2,000 A.	200.0												10
White-tailed jack- rabbit	All refuge uplands-- 14,500 A.	483.3												30
Desert cottontail	Sagebrush flats & draws, meadows & rocky foothills-- 2,000 A.	20.0												100
White-tailed prairie dog	Grasslands--4,000 A.	40.0												100
Muskrat	Rivers, creeks and ponds--1,300 A.	20.0												65
Beaver	-do-	325.0												4

* List removals by Predator Animal Hunter

* List removals by Predator Animal Hunter

REMARKS:

Lee Marlatt
 Reported by LeMoyne B. Marlatt

INSTRUCTIONS

Form NR-4 - SMALL MAMMALS (Include data on all species of importance in the management program; i. e., muskrats, beaver, coon, mink, coyote. Data on small rodents may be omitted except for estimated total population of each species considered in control operations.)

- (1) SPECIES: Use correct common name. Example: Striped skunk, spotted skunk, short-tailed weasel, gray squirrel, fox squirrel, white-tailed jackrabbit, etc. (Accepted common names in current use are found in the "Field Book of North American Mammals" by H. E. Anthony and the "Manual of the Vertebrate Animals of the Northeastern United States" by David Starr Jordan.)
- (2) DENSITY: Applies particularly to those species considered in removal programs. Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottom land hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) REMOVALS: Indicate the total number under each category removed since April 30 of the previous year, including any taken on the refuge by Service Predatory Animal Hunter. Also show any removals not falling under headings listed.
- (4) DISPOSITION OF FUR: On share-trapped furs list the permit number, trapper's share, and refuge share. Indicate the number of pelts shipped to market, including furs taken by Service personnel. Total number of pelts of each species destroyed because of unprimeness or damaged condition, and furs donated to institutions or other agencies should be shown in the column provided.
- (5) TOTAL POPULATION: Estimated total population of each species reported on as of April 30.
- REMARKS: Indicate inventory method(s) used, size of sample area(s), introductions, and any other pertinent information not specifically requested.

May-August

3-1750
Form N. 1
(Rev. March 1953)

W A T E R F O W L

REFUGE Pathfinder

MONTHS OF May TO August, 19 66

(1) Species	(2) Weeks of reporting period									
	5/1-7	5/8-14	5/15-21	5/22-28	5/29-6/4	6/5-11	6/12-18	6/19-25	6/26-7/2	7/3-9
	1	2	3	4	5	6	7	8	9	10
<u>Swans:</u>										
Whistling										
Trumpeter										
<u>Geese:</u>										
Canada	30	30	30	30	50	50	50	50	60	60
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other										
<u>Ducks:</u>										
Mallard	100	100	75	50	50	50	125	150	150	150
Black										
Gadwall	20	20	20	20	30	50	50	50	50	50
Baldpate	20	20	10	10	30	30	30	40	40	30
Pintail	300	300	275	250	175	200	100	50	100	150
Green-winged teal	90	60	60	50	50	100	100	100	100	100
Blue-winged teal	10	10	10	10	4	4	4	8	8	8
Cinnamon teal	4	4	4		10	10	10	15	15	15
Shoveler	100	60	60	60	60	60	60	60	60	60
Wood										
Redhead	175	175	100	50	50	20	20	25	25	25
Ring-necked										
Canvasback			2	2	2	2	6	6	5	5
Scaup	60	30	30	20	10					
Goldeneye	20	20								
Bufflehead										
Ruddy										
Other C. Merganser	15	15	15	10	10	30	30	30	30	30
TOTAL DUCKS	914	814	661	532	471	556	535	534	583	623
Coot							1	1	1	

3-1750

Cont. NR-1

(Rev. March 1953)

WATERFOWL
(Continuation Sheet)

REFUGE

Pathfinder

MONTHS OF May

TO

August, 19 66

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production Broods: Estimate seen : total	
	7/10-16 11	7/17-23 12	7/24-30 13	7/31-8/6 14	8/7-13 15	8/14-20 16	8/21-27 17	8/28-9/3 18			
Swans:											
Whistling											
Trumpeter											
Geese:											
Canada	75	75	112	112	120	100	100	100	8,638	5	30
Cackling											
Brant											
White-fronted											
Snow											
Blue											
Other											
Ducks:											
Mallard	125	100	100	100	70	50	50	50	11,515	13	70
Black											
Gadwall	50	50	50	50	30	20	20	20	4,550	2	30
Baldpate	10	10	10	10	20	20	20	20	2,660		
Pintail	200	350	400	450	350	300	300	300	31,850	41	285
Green-winged teal	150	125	100	100	100	50	50	50	10,745	6	35
Blue-winged teal	10	20	30	30	30	30	30	30	2,002	3	15
Cinnamon teal	10	10	10						749	1	2
Shoveler	75	75	75	50	30	30	20	10	7,035	2	13
Wood											
Redhead	25	30	35	35	35	35	50	50	6,720	2	12
Ring-necked											
Canvasback	5	5	5	5	5				385	1	4
Scaup		2	2	2	30	50	50	50	2,352		
Goldeneye								40	280		
Bufflehead											
Ruddy		5	5	5	5				140		
Other C. Merganser	30	40	40	40	30	30	30	30	3,395	1	10
TOTAL DUCKS	690	822	862	877	735	615	620	610	84,378	72	476
Coot:	1								28		
				(over)							

	(5)	(6)	(7)	SUMMARY
	Total Days Use	Peak Number	Total Production	
Swans				Principal feeding areas Sweetwater Arm, Soda Lakes,
Geese	8,638	120	30	Goose Bay, Deweese Creek and North Platte River
Ducks	84,378	914	476	Principal nesting areas Soda Lakes; Sweetwater Arm;
Coots	28	1	0	some at Dweese Creek, Goose Bay and Sage Creek.
				Reported by LeMoyné B. Marlatt, Refuge Manager

INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

- (1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.
- (2) Weeks of Reporting period: Estimated average refuge populations.
- (3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.
- (4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.
- (5) Total Days Use: A summary of data recorded under (3).
- (6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.
- (7) Total Production: A summary of data recorded under (4).

Form 1. 1A
(Aug. 1952)

MIGRATORY BIRD
(Other than Waterfowl)

Refuge Pathfinder

Months of May to August, 1966

(1) Species	(2) First Seen		(3) Peak Concentration		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Inclusive Dates	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Use
I. <u>Water and Marsh Birds:</u>										
Eared grebe	2	7/19	5	7/28	5	7/28				30
Western grebe	20	5/16	55	7/19	6	7/28				1,700
White pelican	1	5/6	1	5/6	1	5/6				14
D-crested cormorant	15	7/19	15	7/19	15	7/19				450
Great blue heron	Present		10	7/28	Still	present				1,000
Snowy egret	4	5/26	4	5/26	4	5/26				28
Black-crowned night heron	1	8/24	1	8/24	1	8/24				7
II. <u>Shorebirds, Gulls and Terns:</u>										
Snowy plover	1	7/28	1	7/28	1	7/28				30
Killdeer	Present		150	7/28	Still	present			75	10,000
Common snipe	Present		16	7/27	16	7/27				320
Long-billed curlew	Present		6	7/27	6	7/27			4	1,200
Spotted sandpiper	10	6/9	13	7/27	Still	present				1,000
Willet	Present		10	7/27	"	"			4	240
Lesser yellowlegs	6	7/27	6	7/27	6	7/27			3	200
Western sandpiper	20	7/28	20	7/28	20	7/28				1,200
American avocet	Present		320	7/28	Still	present			100	24,000
Wilson's phalarope	Present		470	7/28	"	"			200*	32,000
California gull	Present		50	5/26	"	"				750
Ring-billed gull	Present		4	8/24	"	"				480
* Estimate based on adult behavior--no nests or young have been identified. Further study pending.										

(over)

(1)	(2)	(3)	(4)	(5)	(6)
III. Doves and Pigeons:					
Mourning dove	Present	50	Still present		20 1,200
White-winged dove					
IV. Predaceous Birds:					
Golden eagle	Present	6	Still present		240
Duck hawk					
Horned owl	Present	6	" "		720
Magpie	Present	20	" "		1,200
Raven					
Crow	Present	10	" "		600
Bald eagle	Present	4	" "		240
Burrowing owl	2 6/6	10	" "		600
Short-eared owl	1 7/27	2	" "		180
Turkey vulture	Present	15	" "		600
Red-tailed hawk	Present	2	" "		60
Swainson's hawk	Present	2	" "		60
Rough-legged hawk	Present	4	" "		120
Marsh hawk	Present	8	" "		960
Sparrow hawk	Present	2	" "		60
Reported by LeMoyne B. Marlatt, Ref. Mgr.					

INSTRUCTIONS (See Sec. 7532, Wildlife Refuges Field Manual)

- (1) **Species:** Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiformes)
 II. Shorebirds, Gulls and Terns (Charadriiformes)
 III. Doves and Pigeons (Columbiformes)
 IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)
- (2) **First Seen:** The first migration record for the species for the reporting period.
- (3) **Peak Numbers:** Estimated number and inclusive dates when peak population of the species occurred.
- (4) **Last Seen:** The last refuge record for the species during the season concerned.
- (5) **Production:** Estimated number of young produced based on observations and actual counts.
- (6) **Total:** Estimated species days use (average population X no. days present) of refuge during the reporting period.

3-1750b
Form NR-1B
(Rev. Nov. 1957)

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE

WATERFOWL UTILIZATION OF REFUGE HABITAT

Refuge Pathfinder For 12-month period ending August 31, 1966

Reported by LeMoyné B. Marlatt Title Refuge Manager

(1) Area or Unit Designation	(2) Habitat Type Acreage		(3) Use-days	(4) Breeding Population	(5) Production
Sweetwater Unit	Crops		Ducks 108,072	20	40
	Upland 9,947		Geese 15,400	4	10
	Marsh 540		Swans		
	Water 1,260		Coots 28		
	Total 11,747	Total	123,500	24	50
Soda Lakes Unit	Crops		Ducks 80,000	140	350
	Upland 380		Geese 5,000	4	10
	Marsh 420		Swans		
	Water 420		Coots		
	Total 1,220	Total	85,000	144	360
Goose Bay Unit	Crops		Ducks 10,000	16	30
	Upland 940		Geese 9,489		
	Marsh 40		Swans		
	Water 160		Coots		
	Total 1,140	Total	19,489	16	30
Deweese Creek Unit	Crops		Ducks 16,100	24	50
	Upland 1,000		Geese 1,000	2	5
	Marsh 40		Swans		
	Water 100		Coots		
	Total 1,140	Total	17,100	26	55
Sage Creek- Platte Unit	Crops		Ducks 14,000	2	6
	Upland 1,380		Geese 5,000	2	5
	Marsh 20		Swans		
	Water 160		Coots		
	Total 1,560	Total	19,000	4	11
	Crops		Ducks		
	Upland		Geese		
	Marsh		Swans		
	Water		Coots		
	Total	Total			
REFUGE TOTALS	Crops		Ducks 228,172	202	476
	Upland 13,647		Geese 35,889	12	30
	Marsh 1,060		Swans		
	Water 2,100		Coots 28		
	Total 16,807	Total	264,089	214	506

(over)

INSTRUCTIONS

All tabulated information should be based on the best available techniques for obtaining these data. Estimates having no foundation in fact must be omitted. Refuge grand totals for all categories should be provided in the spaces below the last unit tabulation. Additional forms should be used if the number of units reported upon exceeds the capacity of one page. This report embraces the preceding 12-month period, NOT the fiscal or calendar year, and is submitted annually with the May-August Narrative Report.

- (1) Area or Unit: A geographical unit which, because of size, terrain characteristics, habitat type and current or anticipated management practices, may be considered an entity apart from other areas in the refuge census pattern. The combined estimated acreages of all units should equal the total refuge area. A detailed map and accompanying verbal description of the habitat types of each unit should be forwarded with the initial report for each refuge, and thereafter need only be submitted to report changes in unit boundaries or their descriptions.
- (2) Habitat: Crops include all cultivated croplands such as cereals and green forage, planted food patches and agricultural row crops; upland is all uncultivated terrain lying above the plant communities requiring seasonal submergence or a completely saturated soil condition a part of each year, and includes lands whose temporary flooding facilitates use of non-aquatic type foods; marsh extends from the upland community to, but not including, the water type and consists of the relatively stable marginal or shallow-growing emergent vegetation type, including wet meadow and deep marsh; and in the water category are all other water areas inundated most or all of the growing season and extending from the deeper edge of the marsh zone to strictly open-water, embracing such habitat as shallow playa lakes, deep lakes and reservoirs, true shrub and tree swamps, open flowing water and maritime bays, sounds and estuaries. Acreage estimates for all four types should be computed and kept as accurate as possible through reference to available maps supplemented by periodic field observations. The sum of these estimates should equal the area of the entire unit.
- (3) Use-days: Use-days is computed by multiplying weekly waterfowl population figures by seven, and should agree with information reported on Form NR-1.
- (4) Breeding Population: An estimate of the total breeding population of each category of birds for each area or unit.
- (5) Production: Estimated total number of young raised to flight age.

3-1752
Form NI
(April 1946)

UPLAND GAME RDS

Refuge Pathfinder Months of May to August, 19 66

(1) Species	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
						Hunting	For Re- stocking	For Research		
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs.'v'd.	Estimated Total	Percentage				Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Sage grouse	Sage brush flats, draws, and meadows-- 750 acres	3.75	2	75	100:100	-	-	-	200	Five-day hunting season be- gan August 27 in the Carbon and Natrona County areas surrounding the refuge-- three-bird bag with six in possession. Hunter pressure adjacent to refuge, light to moderate. Hunter success, good.

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

- (1) SPECIES: Use correct common name.
- (2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.
- (4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.
- (5) REMOVALS: Indicate total number in each category removed during the report period.
- (6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.
- (7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

* Only columns applicable to the period covered should be used.

Sept.-Dec.

3-1750
Form NA-1
(Rev. March 1953)

W A T E R F O W L

REFUGE Pathfinder

MONTHS OF September TO December , 19 66

[illegible]

3-1750

Cont. NR-1

(Rev. March 1953)

W A T E R F O W L
(Continuation Sheet)

REFUGE PathfinderMONTHS OF September TO December, 1966

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production Broods:Estimate seen : total
	11/13-19 11	11/20-26 12	11/27-12/3 13	12/4-10 14	12/11-17 15	12/18-24 16	12/25-31 17	18		
Swans:										
Whistling		5							35	
Trumpeter										
Geese:										
Canada	160	160	160	160	160	160	160		17,360	
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other										
Ducks:										
Mallard	75	60	75	75	110	130	200		9,625	
Black										
Gadwall	10	10	10	10	10	10	10		1,820	
Baldpate	10	10	10	10	4	2	2		1,666	
Pintail	10								11,620	
Green-winged teal									3,885	
Blue-winged teal									210	
Cinnamon teal										
Shoveler									140	
Wood										
Redhead									1,190	
Ring-necked										
Canvasback										
L. Scaup									560	
C. Goldeneye	40	40	70	70	70	70	100		6,020	
Bufflehead										
Ruddy										
Other C. Merganser	25	25	25	25	25	25	25		3,115	
TOTAL DUCKS	170	145	190	190	219	237	337		39,851	
Coot:										
None										
				(over)						

	(5)	(6)	(7)	SUMMARY
	Total Days Use	Peak Number	Total Production	
Swans	35	5		Principal feeding areas Waters of Soda Lakes and shore
Geese	17,360	160		along Sweetwater and North Platte Rivers and Goose Bay.
Ducks	39,851	650		Principal nesting areas
Coots	0	0		
				Reported by LeMoyné B. Marlatt

INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

- (1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.
- (2) Weeks of Reporting period: Estimated average refuge populations.
- (3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.
- (4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.
- (5) Total Days Use: A summary of data recorded under (3).
- (6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.
- (7) Total Production: A summary of data recorded under (4).

3-1751
Form N. 1A
(Aug. 1952)

MIGRATORY BIRD.
(Other than Waterfowl)

Refuge Pathfinder

Months of September to December, 19 66

(1) Species	(2) First Seen		(3) Peak Concentration		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Inclusive Dates	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Use
<p>I. <u>Water and Marsh Birds:</u></p> <p>No notes this period.</p>										
<p>II. <u>Shorebirds, Gulls and Terns:</u></p> <p>No notes this period.</p>										

(over)

(1)	(2)	(3)	(4)	(5)	(6)
III. <u>Doves and Pigeons:</u> Mourning dove White-winged dove					
IV. <u>Predaceous Birds:</u> *					
Golden eagle	Present	4	12/17	Still present	480
Duck hawk					
Horned owl					
Magpie					
Raven					
Crow					
Bald eagle	Present	5	12/17	Still present	480
Turkey vulture	Present	2		Still present	240
Rough-legged hawk	Present	4	11/21	Still present	480
* Notes incomplete this period.					
Reported by LeMoyne B. Marlatt, Refuge Manager					

INSTRUCTIONS (See Sec. 7532, Wildlife Refuges Field Manual)

- (1) **Species:** Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiformes)
II. Shorebirds, Gulls and Terns (Charadriiformes)
III. Doves and Pigeons (Columbiformes)
IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)
- (2) **First Seen:** The first migration record for the species for the reporting period.
- (3) **Peak Numbers:** Estimated number and inclusive dates when peak population of the species occurred.
- (4) **Last Seen:** The last refuge record for the species during the season concerned.
- (5) **Production:** Estimated number of young produced based on observations and actual counts.
- (6) **Total:** Estimated species days use (average population X no. days present) of refuge during the reporting period.

WATERFOWL HUNTER KILL SURVEY

Refuge Pathfinder

Year 196

(1) Weeks of Hunting	(2) No. Hunters Checked	(3) Hunter Hours	(4) Waterfowl Species and Nos. of Each Bagged	(5) Total Bagged	(6) Crippling Loss	(7) Total Kill	(8) Est. No. of Hunters	(9) Est. Total Kill
14	15	600	Canada Goose Mallard * C. Goldeneye * C. Merganser * Gadwall * American widgeon * * This is an estimate of the decreasing order in which ducks were part of the bag. Since only two days were actually devoted to checking waterfowl hunters, only a small number of hunters' bags were sampled. Not enough information was obtained to attempt to estimate the numbers of each species taken.				100	20 geese 75 ducks

(over)

INSTRUCTIONS

- (1) The first week of hunting begins with opening day and ends at the close of hunting 6 days later. Successive weeks follow the same pattern.
- (2) The goal is to survey a minimum of 25 percent of refuge hunters each week and to record data only from those who have completed their day's hunting. This information should be collected during each day of the week and in each area hunted in relative proportion to the hunter effort expended. When the 25 percent goal cannot be achieved, particular care should be taken to collect representative data.
- (3) Record the total number of hours the hunters spent hunting on the refuge.
- (4) List waterfowl species in decreasing order of numbers bagged. Sample entry: Mallard (61), Pintail (36), Redhead (16), Gadwall (11), Widgeon (6), Coot (4), Canada Goose (3), Green-winged Teal (1).
- (5) Record total numbers of waterfowl bagged.
- (6) Record total numbers of waterfowl reported knocked down but not recovered.
- (7) Total of Columns 5 and 6.
- (8) Estimate the total number of hunters who hunted on the refuge during the week, including hunters checked (Column 2).
- (9) Kill sample projected to 100 percent. $\text{Column 9} = \frac{\text{Column 8}}{\text{Column 2}} \times \text{Column 7}.$

3-1752
Form NI
(April 1946)

UPLAND GAME RDS

Refuge Pathfinder

Months of September to December, 19 66

(1) Species	(2) Density		(3) Young Produced	(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs.'v'd. Estimated Total	Percentage	Hunting	For Re- stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Sage grouse	Sage brush flats, draws, and meadows- 700 acres	5		100:100				150	Some utilization by hunters when birds move from refuge. Population declined slightly from last year - apparent poor nesting success.

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

- (1) SPECIES: Use correct common name.
- (2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.
- (4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.
- (5) REMOVALS: Indicate total number in each category removed during the report period.
- (6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.
- (7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

* Only columns applicable to the period covered should be used.

3-1753
Form 3
(June 1945)

BIG GAME

Refuge Pathfinder

Calendar Year 1966

(1) Species	(2) Density	(3) Young Produced	(4) Removals				(5) Losses			(6) Introductions	(7) Estimated Total Refuge Population		(8) Sex Ratio
			Hunting	For Re- stocking	Sold	For Research	Predation	Disease	Winter Loss		At Period of Greatest Use	As of Dec. 31	
Common Name	Cover Types, Total Acreage of Habitat	Number								Number	Source		
Antelope	Sagebrush flats and draws, hillsides, meadows, and shoreline of reservoir and rivers - 12,000 acres		200								1,200	1,000	20:100
Mule deer	Rocky hillsides, sagebrush draws, and meadows - 1,500 acres		5								75	70	30:100

Remarks: Decline in antelope numbers noted this year--
may be due to severe spring storms.

Reported by LeMoyné B. Marlatt, Refuge Manager

INSTRUCTIONS

Form NR-3 (Form-1753) - BIG GAME

- (1) SPECIES: Use correct common name; i.e., Mule deer, black-tailed deer, white-tailed deer. It is unnecessary to indicate sub-species such as northern or Louisiana white-tailed deer.
- (2) DENSITY: Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) YOUNG PRODUCED: Estimated total number of young produced on refuge.
- (4) REMOVALS: Indicate total number in each category removed during the year.
- (5) LOSSES: On the basis of known records or reliable estimates indicate total losses in each category during the year.
- (6) INTRODUCTIONS: Indicate the number and refuge or agency from which stock was secured.
- (7) TOTAL REFUGE POPULATION: Give the estimated population of each species on the refuge at period of its greatest abundance and also as of December 31.
- (8) SEX RATIO: Indicate the percentage of males and females of each species as determined from field observations or through removals.

116008

Refuge Pathfinder

Year 19 66

Botulism None noted.

Lead Poisoning or other Disease None noted.

Period of outbreak _____

Period of heaviest losses _____

Losses:

	Actual Count	Estimated
(a) Waterfowl	_____	_____
(b) Shorebirds	_____	_____
(c) Other	_____	_____

Number Hospitalized	No. Recovered	% Recovered
---------------------	---------------	-------------

(a) Waterfowl	_____	_____
(b) Shorebirds	_____	_____
(c) Other	_____	_____

Areas affected (location and approximate acreage) _____

Water conditions (average depth of water in sickness areas, reflooding of exposed flats, etc.) _____

Condition of vegetation and invertebrate life _____

Remarks _____

Kind of disease _____

Species affected _____

Number Affected Species	Actual Count	Estimated
_____	_____	_____
_____	_____	_____
_____	_____	_____

Number Recovered _____

Number lost _____

Source of infection _____

Water conditions _____

Food conditions _____

Remarks _____

PUBLIC RELATIONS

(See Instructions on Reverse Side)

Refuge PathfinderCalendar Year 1966

1. Visits

a. Hunting 3,100 b. Fishing 4,000 c. Miscellaneous 3,620 d. TOTAL VISITS 10,720

1a. Hunting (on refuge lands)

TYPE	HUNTERS	ACRES	MANAGED BY
Waterfowl	100	3,840	
Upland Game			
Big Game	3,000	16,000	
Other			

Number of permanent blinds NoneMan-days of bow hunting included above 10Estimated man-days of hunting on lands adjacent to
refuge 15,000

1b. Fishing (area open to fishing on refuge lands)

TYPE OF AREA	ACRES	MILES
Ponds or Lakes	400	
Streams and Shores		12.5

1c. Miscellaneous Visits

Recreation 3,000 Official 120Economic Use 500 Industrial

2. Refuge Participation (groups)

TYPE OF ORGANIZATION	On refuge		Off refuge	
	NO. OF GROUPS	NUMBER IN GROUPS	NO. OF GROUPS	NUMBER IN GROUPS
Sportsmen Clubs				
Bird and Garden Clubs				
Schools				
Service Clubs				
Youth Groups				
Professional-Scientific				
Religious Groups				
State or Federal Govt.			2	20
Other			2	100

3. Other Activities

TYPE	NUMBER	TYPE	NUMBER
Press Releases	3	Radio Presentations	
Newspapers (P.R.'s sent to)	5	Exhibits	
TV Presentations		Est. Exhibit Viewers	

INSTRUCTIONS

Item 1: Total of a, b, and c, equal d.

"Visit" - definition. Any person who is on refuge lands or waters during a day or part thereof for the purpose of: hunting, fishing, bird-watching, recreation, business or economic use, official visit, or similar interest. INCLUDE - those who stop within the refuge while traveling on a public highway because of an interest in the area. EXCLUDE - persons engaged in oil or other industry not directly related to the refuge, persons using refuge as most direct route or principal avenue of traffic, and those boating on navigable rivers or the Intercoastal Canal, unless they stop to observe wildlife on the refuge.

Computing visits. Where actual counts are impractical, "sampling" is used with midweek and week-end samples varied by season or weather. A conversion factor of 3.5 (of passengers per car) is used when accurate figures are not available. Each refuge will develop a conversion factor for boats based on range of usage. Count a camper once for each 24-hour period or fraction thereof.

Item 1a: Acres - of refuge open for each type of hunting.

Managed hunts require check in and out of hunters, issuance of permits, or assignment of blinds.

Other - INCLUDE crow, fox, and similar hunting.

Lands adjacent to refuge. Normally considered within 1 mile or less of boundary, unless established sampling procedures cover a wider area. For big game hunting, the distance may be greater.

Item 1b: Acres of streams open to fishing, if practical; otherwise just miles open. Information on "shores" is primarily for coastal fishing.

Item 1c: Recreation. INCLUDE photography, observing wildlife, picnicking, swimming, boating, camping, visitor center use, tours, etc. TOTAL Recreation, Official, and Economic Use visits under Item 1.

Industrial. INCLUDE persons engaged in industry, i.e., oil industry or factories. EXCLUDE these from Item 1.

Item 2: INCLUDE the "On Refuge" groups in Items 1c and 1. In "Off Refuge" column include only those group meetings in which refuge employees actually participate. EXCLUDE these from Items 1c and 1.

Item 3: Exhibits - INCLUDE displays, fairs, parades, and exhibits OFF the refuge; EXCLUDE those ON.

Refuge Pathfinder Year 19 66

Collections and Receipts (Seeds, rootstocks, trees, shrubs)							Plantings (Marsh - Aquatic - Upland)						
Species	Amount (Lbs., bus., etc.)	(2) C or R	Date	Method or Source	Cost	(3) Total Amount on Hand	Location of Area Planted	Rate of Seeding or Planting	Amount Planted (Acres or Yards of Shoreline)	Amount and Nature of Propagules	Date	Survival	Cause of Loss
None													

- (1) Report agronomic farm crops on Form NR-8
- (2) C = Collections and R = Receipts
- (3) Use "S" to denote surplus

Total acreage planted:
Marsh and aquatic _____
Hedgerows, cover patches _____
Food strips, food patches _____
Forest plantings _____

Remarks: _____

3-1758

Form 8

(Rev. Jan. 1956)

Fish and Wildlife Service Branch of Wildlife Refuges

CULTIVATED CROPS - HAYING - GRAZING

Refuge PathfinderCounty Natrona - CarbonState Wyoming

Cultivated Crops Grown	Permittee's Share Harvested		Government's Share or Return				Total Acreage	Green Manure, Cover and Water- fowl Browsing Crops Type and Kind	Total Acreage
	Acres	Bu./Tons	Harvested		Unharvested				
			Acres	Bu./Tons	Acres	Bu./Tons			
None									
								Fallow Ag. Land	None

No. of Permittees: Agricultural Operations 0 Haying Operations 0 Grazing Operations 0

Hay - Improved (Specify Kind)	Tons Harvested	Acres	Cash Revenue	GRAZING	Number Animals	AUM'S	Cash Revenue	ACREAGE
None				1. Cattle	Grazing administered by	Bureau of		Land Management *
				2. Other				
				1. Total Refuge Acreage Under Cultivation				
Hay - Wild	None			2. Acreage Cultivated as Service Operation				None

* Based on recommendations made by BSF&W

DIRECTIONS FOR PREPARING FORM NR-8
CULTIVATED CROPS - HAYING - GRAZING

Report Form NR-8 should be prepared on a calendar-year basis for all crops which were planted during the calendar year and for haying and grazing operations carried on during the same period.

Separate reports shall be furnished for Refuge lands in each county when a refuge is located in more than one county or State.

Cultivated Crops Grown - List all crops planted, grown and harvested on the refuge during the reporting period regardless of purpose. Crops in kind which have been planted by more than one permittee or this Service shall be combined for reporting purposes.

Permittee's Share - Only the number of acres utilized by the permittee for his own benefit should be shown under the Acres column, and only the number of bushels of farm crops harvested by the permittee for himself should be shown under the Bushels Harvested column. Report all crops harvested in bushels or fractions thereof except such crops as silage, watermelons, cotton, tobacco, and hay, which should be reported in tons or fractions thereof.

Government's Share or Return - Harvested - Show the acreage and number of bushels harvested for the Government of crops produced by permittees or refuge personnel. Unharvested - Show the exact acreage and the estimated number of bushels of grain available for wildlife. If grazing is made available to waterfowl through the planting of grain, cover, green manure, grazing or hay crops, estimate the tonnage of green food produced or utilized and report under Bushels Unharvested column.

Total Acreage Planted - Report all acreage planted, including crop failures.

Green Manure, Cover and Waterfowl Grazing Crops - Specify the acreage, kind and purpose of the crop. These crops and the acreage may be duplicated under cultivated crops if planted during the year, or a duplication may occur under hay if the crop results from a perennial planting.

Hay - Improved - List separately the kinds of improved hay grown. Annual plantings should also be reported under Cultivated Crops, and perennial hay should be listed in the same manner at time of planting.

Total Refuge Acreage Under Cultivation - Report total land area devoted to agricultural purposes during the year.

REFUGE GRAIN REPORT

Refuge Pathfinder

Months of January through December, 195/ 66

(1) VARIETY*	(2) ON HAND BEGINNING OF PERIOD	(3) RECEIVED DURING PERIOD	(4) TOTAL	(5) GRAIN DISPOSED OF				(6) ON HAND END OF PERIOD	(7) PROPOSED OR SUITABLE USE*		
				Transferred	Seeded	Fed	Total		Seed	Feed	Surplus
SEE HUTTON LAKE REFUGE REPORT.											

(8) Indicate shipping or collection points _____

(9) Grain is stored at _____

(10) Remarks _____

*See instructions on back.

REFUGE GRAIN REPORT

This report should cover all grain on hand, received, or disposed of, during the period covered by this narrative report.

Report all grain in bushels. For the purpose of this report the following approximate weights of grain shall be considered equivalent to a bushel: Corn (shelled)—55 lb., corn (ear)—70 lb., wheat—60 lb., barley—50 lb., rye—55 lb., oats—30 lb., soy beans—60 lb., millet—50 lb., cowpeas—60 lb., and mixed—50 lb. In computing volume of granaries, multiply the cubic contents (cu. ft.) by 0.8 bushels.

- (1) List each type of grain separately and specifically, as flint corn, yellow dent corn, square deal hybrid corn, garnet wheat, red May wheat, durum wheat, spring wheat, proso millet, combine milo, new era cowpeas, mikado soy beans, etc. Mere listing as corn, wheat, and soybeans will not suffice, as specific details are necessary in considering transfer of seed supplies to other refuges. Include only domestic grains; aquatic and other seeds will be listed on NR-9.
- (3) Report all grain received during period from all sources, such as transfer, share cropping, or harvest from food patches.
- (4) A total of columns 2 and 3.
- (6) Column 4 less column 5.
- (7) This is a proposed break-down by varieties of grain listed in column 6. Indicate if grain is suitable for seeding new crops.
- (8) Nearest railroad station for shipping and receiving.
- (9) Where stored on refuge: "Headquarters granary," etc.
- (10) Indicate here the source of grain shipped in, destination of grain transferred, data on condition of grain, unusual uses proposed.

ANNUAL REPORT OF PESTICIDE APPLICATION

Proposal Number

Reporting Year

1966

INSTRUCTIONS: Wildlife Refuges Manual, secs. 3252d, 3394b and 3395.

Date(s) of Application	List of Target Pest(s)	Location of Area Treated	Total Acres Treated	Chemical(s) Used	Total Amount of Chemical Applied	Application Rate	Carrier and Rate	Method of Application
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
None								

10. Summary of results (continue on reverse side, if necessary)